

**Claims:**

1. A smart-card reader adapted to receive and lock a smart-card in a locking position, said smart-card reader comprising:  
5           a housing having oppositely arranged longitudinally extending side surfaces,  
          a contacting apparatus not movable, glideable, pivotable carrying contact elements  
10           adapted to contact respective card contacts of the smart-card in a reading position of said smart-card in said housing,  
          mechanical locking means for locking and releasing the smart-card,  
          wherein the mechanical locking means comprises a locking slide and a locking lever mechanism, wherein  
15           a) the locking slide extends longitudinally and outside of the perimeter of the card and of the housing and alongside one of said side surfaces, and wherein  
             b) the locking lever mechanism locks the locking slide in the locked reading position and is located, seen in the direction of the card insertion in front of the contacting apparatus and above the smart-card.

2. Smart-card reader of claim 1, wherein the locking lever mechanism comprises a locking lever which locks and de-locks, respectively, the smart-card located in the reading position by engagement with the locking slide in the smart-card reader.  
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3. Smart-card reader of claim 2, wherein the locking lever comprises a plurality of lever arms to which a plurality of functions are assigned.  
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4. Smart-card reader of claim 2, wherein the locking lever provides for one or more of the following functions:  
          actuating the locking switch in the locking position,

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locking and releasing the locking slide,  
de-locking the mechanical locking means by actuation of the emergency  
de-locking lever.

5. 5. Smart-card reader of claim 2, wherein the locking lever mechanism and  
the housing each comprise guide surfaces which are overlying each  
other and guide the locking lever during its rotation about an axis.

10. 6. Smart-card reader of claim 1, wherein the mechanical locking means is  
of a flat design and all components of the mechanical locking means  
are mounted without additional mounting means by detent functions,  
form connections and by the components supporting each other.

15. 7. Smart-card reader of claim 1, wherein the locking slide comprises a  
forward and a backward end portion, and wherein in the reading position  
after the smart-card has been inserted, the smart-card is in engagement  
with the rearward end portion of the locking slide and has moved said locking slide along its longitudinal direction backward towards the locking position, whereby the forward end portion of the locking slide has been lowered and card locking means has been brought in engagement with the smart-card so as to lock said smart-card.

20. 8. Smart-card reader of claim 1, wherein the locking slide is guided in its relative movement to the housing by means of guide elements provided at the housing, by means of guide surfaces, and by a stopper.

25. 9. Smart-card reader of claim 2, wherein the locking lever comprises a locking nose, which locks the locking slide in the locking position after the locking slide is moved into the locking position.

30. 10. Smart-card reader of claim 2, wherein the locking lever mechanism comprises spring means, in particular a wire spring which is mounted at

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the housing and at the locking lever and wherein the locking lever is biased by said spring means into the locking position.

5 11. Smart-card reader of claim 10, wherein the wire spring is in engagement with the locking slide and biases the locking slide into the de-locked position.

10 12. Smart-card reader of claim 2, wherein the locking lever comprises an actuating lever which releases the engagement of the locking lever with the locking slide and thus allows a direct manual de-locking.

15 13. Smart-card reader of claim 1, wherein the locking lever comprises an actuator which operates or actuates a locking switch located at the housing so as to indicate the locked or de-locked condition of the smart-card reader.

20 14. Smart-card reader of claim 2 comprising a release solenoid which extends along and outside of the housing.

25 15. Smart-card reader of claim 14, wherein the locking slide extends between the housing and the release solenoid.

16. Smart-card reader of claim 14, wherein the locking lever is coupled to the release solenoid so as to release the locking slide and thus provide for a de-locking of the smart-card.

30 17. Smart-card reader of claim 14, wherein the release solenoid comprises a pull-operated magnet armature and a restoring or reset spring.

18. Smart-card reader of claim 17, wherein the magnet armature executes an unimpeded movement prior to the magnet armature engaging a coupling fork of the locking lever during its movement so as to reduce the amount of energy required for the de-locking.

19. Smart-card reader of claim 18, wherein the electrical operation of the magnet armature provides for the regular de-locking of the mechanical locking means while a mechanical emergency de-locking is provided by actuating the actuating lever by hand.

20. Smart-card reader of claim 1, wherein the locking slide is a single-piece member and extends along the length of the smart-card.

10 21. Smart-card reader of claim 1, wherein the rearward portion of the locking slide is located adjacent to the card reading position in the locking position as well as in the released position.

15 22. Smart-card reader of claim 1, wherein the contact apparatus is directly actuated by the card.

23. Smart-card reader of claim 1, wherein the locking slide comprises at its forward portion card locking means for locking the smart-card.

20 24. Smart-card reader of claim 1, wherein the housing and the locking slide comprise two spaced pairs of inclined surfaces which are in engagement with each other and which guide the card lock during its relative movement into its locking or release positions.

25 25. A smart-card reader adapted to receive and lock a smart-card in a locking position, said smart-card reader comprising:  
a housing having oppositely arranged longitudinally extending side surfaces,  
a contacting apparatus reciprocally mounted in said housing between an insert position and a lower reading position, in which card contacts of a smart-card can be contacted

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5 said contacting apparatus being biased into said first or insert position and being adapted to be moved by the insertion of said card from its insert position to said reading position,

10 a locking slide reciprocally mounted at one of said side surfaces outside and alongside said housing,

15 said locking slide having card-receiving means adapted to be contacted during the insertion of said card and during the movement of said contacting apparatus from the insert position to the reading position,

20 said locking means further comprising at its forward end card locking means projecting inwardly and downwardly so as to lock the smart-card in its reading position,

25 said locking slide being biased into its release position, and

30 a locking lever pivotally mounted in a direction towards the forward end of the smart-card reader in front of the contacting apparatus and adapted to lock said locking slide in its locking position.

26. Smart-card reader of claim 25, wherein the locking lever can be actuated by a release solenoid and/or by a manual actuation.

20 27. Smart-card reader of claim 26, wherein a single wire spring is provided, which biases the locking slide into its release position and also biases the locking lever into its locking position.

25 28. Smart-card reader of claim 26, wherein said locking lever comprises three arms, one arm adapted for co-operation with said solenoid, a second arm adapted for being actuated manually to release said card from its reading position and a third arm adapted to actuate a switch, e.g. for indicating the presence of a card in the smart-card reader

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